

## CLAIMS

## [CLAIM 1]

A method for manufacturing a circuit board comprising:  
5 attaching a mask film, where a squeegee cleaning part has been formed  
at a predetermined position, to a substrate; then  
forming a through-hole; and  
filling conductive paste into the through-hole by using a squeezing  
method.

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## [CLAIM 2]

A method for manufacturing a circuit board comprising:  
attaching a mask film to both sides of a substrate; then  
forming a through-hole; and  
15 filling conductive paste into the through-hole by using a squeezing  
method,  
wherein a squeegee cleaning part is formed at a predetermined position  
of the mask film before the filling of the conductive paste.

## 20 [CLAIM 3]

The method for manufacturing a circuit board of claim 1 or claim 2,  
wherein the predetermined position is a position of an unnecessary part  
of a product area or an outside of the product area of a paste-filling area of the  
mask film and within a printing range.

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## [CLAIM 4]

The method for manufacturing a circuit board of claim 1,

wherein the squeegee cleaning part is hound's-tooth through-holes formed at the mask film.

[CLAIM 5]

- 5           The method for manufacturing a circuit board of claim 1 or claim 2,  
          wherein the squeegee cleaning part is a no-penetrated linear groove formed at a paste-filling area of the mask film.

[CLAIM 6]

- 10          The method for manufacturing a circuit board of claim 5,  
          wherein the squeegee cleaning part is a plurality of the no-penetrated linear groove.

[CLAIM 7]

- 15          The method for manufacturing a circuit board of claim 1 or claim 2,  
          wherein the squeegee cleaning part of the mask film has a swollen portion.

[CLAIM 8]

- 20          The method for manufacturing a circuit board of claim 5,  
          wherein the no-penetrated groove of the mask film is processed by using a cutting edge.

[CLAIM 9]

- 25          The method for manufacturing a circuit board of claim 8,  
          wherein the cutting edge is a round blade.

**[CLAIM 10]**

The method for manufacturing a circuit board of claim 9,  
wherein the round blade is fixed to a blade-fixing section having  
vertically sliding function with a certain load so as not to rotate.

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**[CLAIM 11]**

The method for manufacturing a circuit board of claim 10,  
wherein a depth of the groove and a height of a swollen portion of the  
squeegee cleaning part are set by adjusting an edge angle of the round blade  
and the load.

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**[CLAIM 12]**

The method for manufacturing a circuit board of claim 7,  
wherein the swollen portion is not lower than  $3\mu\text{m}$ .

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**[CLAIM 13]**

The method for manufacturing a circuit board of claim 1 or claim 2,  
wherein the substrate is a prepreg where resin material, whose main  
body is thermosetting resin, is impregnated into a fabric or a nonwoven fabric,  
thereby forming B-stage.

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**[CLAIM 14]**

The method for manufacturing a circuit board of claim 13,  
wherein aramid fabric is a main body of the fabric or the nonwoven  
fabric.

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**[CLAIM 15]**

The method for manufacturing a circuit board of claim 13,  
wherein glass fiber is a main body of the fabric or the nonwoven fabric.

[CLAIM 16]

5           The method for manufacturing a circuit board of claim 1 or claim 2,  
          wherein the filling of the conductive paste into the through-hole by using  
the squeezing method comprises:

          filling the conductive paste into the through-hole by reciprocating a  
squeegee on the circuit board; and

10           cleaning an edge of the squeegee by using the squeegee cleaning  
part.

[CLAIM 17]

An apparatus for manufacturing a circuit board comprising:

15           a transporting means for transporting a substrate;

          supplying means, which are placed above and below the transporting  
means, for supplying mask films;

          a laminate roll; and

          a groove processing section, which is placed behind the laminate roll and  
20   above the transporting means, for processing a groove at the mask film.

[CLAIM 18]

The apparatus for manufacturing a circuit board of claim 17,

          wherein the groove processing section is formed of a blade-fixing section  
25   including a blade with a certain range of an edge angle and a  
blade-fixing-section-installing unit having a sliding section,

          wherein the blade-fixing section is capable of sliding up and down at the

sliding section of the blade-fixing-section-installing unit.

**[CLAIM 19]**

5           The apparatus for manufacturing a circuit board of claim 18,  
          wherein the blade is a round blade, and fixed to the blade-fixing section  
so as not to rotate.

**[CLAIM 20]**

10          The apparatus for manufacturing a circuit board of claim 17,  
          wherein the groove processing section placed above the transporting  
means is capable of being positioned and fixed.

**[CLAIM 21]**

15          The apparatus for manufacturing a circuit board of claim 17, further  
          comprising:  
          a backing roll directly under the groove processing section and under the  
transporting means.

**[CLAIM 22]**

20          The apparatus for manufacturing a circuit board of claim 18,  
          wherein the edge angle of the blade ranges 30-90°.